



**Submission by**

**Alternative Technology Association**

**on the**

***Victorian Medium Scale Solar Discussion Paper***

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*The views expressed in this document do not necessarily reflect the views of the Consumer Advocacy Panel or the Australian Energy Market Commission.*

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## Introduction

The Alternative Technology Association (ATA) welcomes the opportunity to respond to the Victorian Department of Primary Industries' *Discussion Paper on Medium Scale Solar*.

ATA is a national community-based, not-for-profit organisation representing consumers in the renewable energy and energy efficiency marketplace. The organisation was established in 1980 to empower our community to develop and share sustainable solutions and to promote the uptake of sustainable technologies.

The organisation currently provides service to approximately 6,000 members nationally (over 2,500 in Victoria) who are actively engaged with small, medium and large scale renewable energy, energy efficiency and the national electricity market.

## ATA Expertise

Over the past three years, the ATA has been a significant contributor to renewable energy policy development in most states and at the national level. In particular, ATA has been involved in the development of:

- the design of the Victorian Government's premium feed-in tariff;
- feed-in tariffs in South and Western Australia, New South Wales, Queensland and the ACT;
- the changes to the 'enhanced' *Renewable Energy Target* (pre and post August 2009, when the 20% target was first legislated);
- the Victorian Government's *Climate Change White Paper*;

ATA is also represented on the Minister's *Medium Scale Solar Working Group* for this project.

As such, ATA has developed a sound understanding of the current state of play of renewable energy policy in Australia, including the opportunities presented by various technology types and scales, potential investors and policy alternatives.

## The Opportunity for Medium Scale Solar

Given the development of policy and projects at both the small scale (sub 5kW – 10kW) and large scale (> 5MW), the ATA sees a niche opportunity for the development of renewable energy projects in the currently undefined 'medium scale' space.

As with development in the small scale space, medium scale solar and other renewable energy projects cannot capture the same economies of scale or lower cost abatement opportunities that can be achieved by utility scale developments.

The ATA does not however believe that either of these objectives are the primary reasons for policy support and development in this space.

Primarily, we believe the medium scale space offers opportunities for *community engagement* – whether this is through:

- community ownership models;
- education opportunities involving energy and climate science via greater project accessibility to communities and individuals; or
- providing investment opportunities to a significant sub-set of the population who currently cannot access renewable energy in either the small or large scale development spaces.

In addition, the ATA also see the medium scale space as offering opportunities for:

- technology innovation and trialing, given the inherent conservatism of investment at the utility scale;
- regional jobs and skills development, potentially leading to greater local industry capacity for both medium and large scale developments;
- the possible alleviation of network constraints, subject to specific alignment with network asset work priorities.

### ***Feed-in Tariffs for Renewable Energy***

At a broad level, the ATA supports the use of feed-in tariffs (FiTs) as the most effective and efficient mechanism to drive the deployment of renewable energy. This is in line with international evidence<sup>1</sup> that suggests that FiTs deploy projects at cheaper cost and with greater certainty to market participants, including investors, network operators, governments and electricity consumers (via cost recovery).

Inherent within all FiTs or other structural mechanisms to drive domestic and medium scale low emission technologies is an element of cross-subsidy. In this regard, a FiT for medium scale renewable energy projects provides an opportunity to alleviate some of the inequity of the small solar premium (p)FiT, by opening up access to renewable energy investment to a range of electricity consumers that are not otherwise able to benefit from the pFiT scheme<sup>2</sup>.

In addition, ATA believe that from a public policy perspective, these inherent cross subsidies are defensible when associated with minor electricity price rises on consumer bills<sup>3</sup>. Ultimately, whilst often difficult to quantify, there are network benefits from having increasing levels of distributed generation at both the small and medium scales that are attributable to electricity consumers across the network.

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<sup>1</sup> Toke, D, 2007. *Renewable financial support systems and cost-effectiveness*. Journal of Cleaner Production 15 (2007) 280e287. Department of Sociology, University of Birmingham, UK.

<sup>2</sup> For example, those without sufficient capital to invest in a domestic roof-top system, renters, apartment dwellers and owner occupiers with poorly oriented housing or shading issues.

<sup>3</sup> As an example, modeling conducted for DPI during the course of the Victorian pFiT policy process demonstrated that a 60c / kWh gross FiT driving 100 MW of roof-top solar, with managed annual uptake, could be achieved for an average of \$7.60 per average household per year for the life of the scheme (with a maximum cost per average household in the most expensive year of approximately \$15).

In line with this, and given the recent experience with the NSW FiT, ATA believe it to be currently critical that all governments involved in FiT implementation in Australia begin to introduce effective policy levers to manage investment uptake – particularly at the small and medium scale.

Managed uptake can be achieved by dedicated policy units or regulators setting and administering annual or quarterly uptake targets, in order to:

- achieve a steady flow of investment;
- avoid the typical boom bust scenarios of recent FiT and other subsidy schemes; and
- avoid the associated impacts on industry development and consumer sentiment;

In addition, degression rates (a feature of many international schemes) allow for a reduction in FiT rate in line with technology or other cost reductions achieved over time. We would suggest that a degression rate be considered as part of any potential future medium scale FiT introduced in Victoria.

Ultimately, from ATA's experience, there are no perfect levels at which to set FiT rates or scheme design in the context of constantly changing technology and global renewable energy markets. In this regard, managed uptake can better control the overall cost impact from FiT schemes, alleviating the risk of significant price shock on consumer electricity bills, whilst increasing the public acceptance of, and engagement with, renewable energy.

In line with this broad approach, the ATA has provided answers to specific questions, as outlined in the discussion paper below.

**QU1: *It is appropriate to define medium-scale solar as falling between 100kW and 5MW?***

**QU2: *Do you agree with such a definition and if not, why not?***

With respect to defining a lower limit for any Victorian medium scale support, the question of whether to set this at 100 kW or lower is dependent on the intent of the policy mechanism.

If the intent is to achieve project deployment between 5 kW and 100 kW, the current suite of policy support via deemed RECs and the Victorian standard FiT (sFiT) is unlikely to be sufficient. Evidence of this can be found in the ACT, where with a higher solar insolation factor and a gross FiT of 45.7c / kWh for projects up to 30 kW, very few projects have been realised at this scale.

ATA is supportive of the development of projects in the 5 kW to 100 kW class, however for these projects to materialise, it is likely that a higher FiT rate would be necessary than for projects in the hundreds of kilowatts or few megawatt range. On this basis, we would recommend consideration of a banded approach incorporating differentiated levels of FiT rate for different generator sizes.

***Recommendation 1:***

*Include a 'small' sub- class of 5 kW to 100 kW generators within any policy designed for medium scale projects and consider a banded approach with respect to the FiT, with a higher rate being applicable at the small generator class.*

**QU3: *What are the immediate financial short-term barriers to investing in the medium-scale solar sector and how do these differ from investment in small or large-scale solar?***

**Start-up Capital**

Beside the policy vacuum for financial support between the 5 kW and 5 MW range, projects above the 100 kW class cannot create deemed RECs under the RET or obtain any other form of start-up funding.

With the majority of renewable energy project costs being incurred prior to the generation of the first kW, start-up capital is a significant barrier, particularly with the uncertainties surrounding timescale and professional fees associated with planning approvals and grid connection.

Similar to the Federal *Solar Flagships* program, the Victorian *Solar Hubs* program, or the significant upfront incentives available to small scale solar, start-up capital grants are likely to be necessary to assist with project planning and design for medium scale projects.

***Recommendation 2:***

*Consider appropriate Victorian Government grants and support mechanism that will assist medium scale project proponents to attract start-up capital in order to navigate the initial project planning, design, grid connection and construction phase.*

### **Barrier work with AEMO**

Over the past 12 months, ATA has been working with the Australian Energy Market Operator to identify other financial and non-financial barriers to the participation of small to medium scale generators in the National Electricity Market (NEM).

In early 2010, ATA produced a detailed submission covering the barriers to small generators in the NEM. Whilst this work covered both the micro (sub 10 kW) and small (10 kW – 100 kW) generator class, many of the issues and solutions will be relevant to this review.

ATA's submission to AEMO is **attached to this submission** for DPI's reference, however the key issues relating to medium scale are as follows:

### **Human and financial resource constraints**

There is usually a requirement for medium scale project proponents to conduct a large amount of work and familiarise themselves with an onerous volume of knowledge outside of that required to operate in the NEM, such as legal, technical, financial, and planning approval processes and procedures.

As an example, whilst the scale may differ, the 100 kW solar farm or wind turbine and the 100 MW wind farm have generally common requirements. Both require significant project management, compliance with local, state and sometimes federal planning provisions, energy resource assessment, finance and insurance arrangements, complex logistical arrangements, construction planning, electrical works, commissioning and testing, maintenance and so on. Both also have grid connection agreements, power purchase arrangements and / or energy wholesale market participation, metering and other energy market related requirements.

While a company developing a 100 MW wind farm will typically have dedicated specialist staff in each of the above areas, a medium scale proponent who wishes to install a single 100 kW solar array or wind turbine, due to the prohibitive cost of engaging experts to consult in all of these areas, will likely undertake much of this work themselves – with electricity generation often not comprising their core business.

Due to the relative economies of scale, the sum of all of the above NEM and non-NEM related costs means that the proponent with the 100 kW project will have far higher costs per MWh generated than the wind farm developer with the 100 MW wind farm.

To address this issue, ATA strongly supports measures to streamline processes for medium scale generation units. ATA is of the firm belief that small to medium generators should be entitled to significant concessions and incentives within the NEM, and that it is reasonable for the degree of these concessions and incentives to extend beyond that required to afford financial parity / equity within the market alone.

### **Recommendation 3:**

*To address the issue of greater relative resource requirements for medium scale generators:*

- *Work with AEMO to introduce measures to streamline processes for small generation units, wherever the opportunity to do so exists.*
- *Market and related fees for medium scale generators should be scaled according to generator capacity.*

**QU5: Have all the relevant barriers to uptake of medium-scale solar been identified in this Discussion Paper, and if not, what are they?**

#### **Metering Arrangements**

Depending on how any medium scale policy is designed, metering arrangements may constitute a significant barrier to project deployment.

Besides a stand-alone solar farm type project, where there may exist little or no on-site load, there are likely to be many project opportunities involving the use / lease of roof space from a commercial or industrial buildings.

For sites where there is a significant on-site electricity load (particularly during the day) for commercial or industrial operations, and import / export (also sometimes called 'net') metering arrangements are utilised (as with the small scale pFIT metering arrangements), the ability of solar projects to take advantage of the premium offered through any medium scale FIT may be restricted, detracting from the economic feasibility of the project.

There may be some instances however, such as where an import / export metered solar project may be of greater benefit to the project proponent than a gross metered arrangement is if the on-site customer has a time of use tariff for consumption involving a peak rate during the day that exceeds any premium FIT offered.

On this basis, whilst a gross metered arrangement is likely to be preferable in most scenarios, ATA would advocate that project proponents have a choice as to whether the project is gross or import / export metered.

Whilst a gross metered solar project in this scenario will retain the certainty of any premium FIT incentive for the full amount of electricity generation, the generation and retailing arrangements may also cause difficulties, particularly where the generator owner is not the same as the site owner.

Under normal circumstances, an electricity retailer will have a contract with a commercial or industrial site owner for electricity supply to their premises. For a community-based solar project that is owned by hundreds of individual community investors who may be leasing roof space from a commercial site owner, the project developers will be looking for direct access to the guaranteed return provided by any FIT, and therefore having a direct contractual relationship with the electricity retailer. To ATA's knowledge, this is not an arrangement currently supported by normal electricity market practice.

#### **Recommendation 4:**

*That project proponents have a choice over gross or import / export metering arrangements. In the event that this choice cannot be facilitated, gross metering and billing should be the default associated with the medium scale feed in tariff.*

#### **Recommendation 5:**

*Investigate ways in which a medium scale project proponent, who for market purposes is not a financially responsible market participant, can establish a direct contractual relationship with an electricity retailer for feed-in arrangement (separate to any customer at the same metering point as the generator).*

**QU8: *What level of uptake would be required for medium-scale solar to make a significant contribution to meeting renewable energy and greenhouse gas reduction targets and how feasible is such a level of uptake?***

ATA's view is that the primary objective of medium scale renewable energy projects would not be one of generation or abatement targets. The primary objective would be a range of medium scale projects, distributed across the broadest geographic reach possible, demonstrating innovation with respect to technology types and ownership models, and engaging the broadest number of people possible in renewable energy alternatives.

The small scale pFiT has a policy objective of deploying 100 MW of installed capacity over 15 years. For broadly the same cost, approximately double or more installed capacity could be deployed in the medium scale range, but reaching many more individuals and communities than currently achievable by the small scale pFiT.

**QU9: *What contribution is medium-scale solar likely to make to the security and reliability of supply?***

Community-owned medium scale generation will often have a high degree of ownership throughout local communities – this has been the experience of Hepburn Wind in north-western Victoria and throughout many European case studies.

This being the case, medium scale generation has the potential to be situated in areas of demand on the distribution network. In the case of solar particularly, this has the potential to off-set peak demand and improve security of supply.

**Recommendation 6:**

*Work with distribution network service providers (DNSPs) to identify relevant network constraints that may be suitable for medium scale renewable energy projects.*

**QU14: *Are there any further broad policy aims which should be considered?***

**Social Equity**

As mentioned, medium scale renewable energy projects offer greater accessibility to those who may not be able to participate in the Victorian Government small scale pFiT. This is primarily due to the lower cost per kW investment and not being restricted by site constraints or building type.

**Technology**

ATA believes that the opportunity associated with medium scale renewable energy development exists for a broader range of technologies than just solar. Most notably, Australia's only community-based medium scale project to date, to commence construction in 2011, is the 4 MW 'Hepburn Wind' project in northwestern Victoria.

Currently in Australia, large scale wind is the least cost, commercially proven technology available in the renewable energy market. Without stimulus or increased REC incentives for other renewable energy technologies, large scale wind would dominate the Renewable Energy Target market, and even with these incentives, is projected to deliver more than half of the expanded 2020 target.

Despite this, large scale wind is currently facing significant opposition across regional Victoria, with significant delays to planning processes and substantial misconceptions surrounding threats to public health and amenity impacts. The development of locally owned medium scale wind projects that better engage communities and individuals with the technology and provide educational opportunities should serve to reduce such social barriers to their deployment at all scales.

ATA is therefore a strong supporter of any policy mechanism for medium scale projects to include wind. We also believe there may be further opportunities with a range of other technology types (e.g. medium-scale hydro) and that these should be explored as part of such a policy mechanism.

**Recommendation 7:**

*Expand the design of any policy developed for medium scale solar initially to medium scale wind, and consider other alternative technologies.*

**QU18: What is the primary driver in your particular instance and why?**

ATA works with individuals, households, small businesses and communities at the local level on a range of sustainability projects. In doing so, we are increasingly aware of the desire of individuals and communities to engage with renewable energy projects, but who may currently face barriers to doing so.

Medium scale renewable energy projects opens up a range of new possibilities not currently accessible through either small or large scale renewable energy projects, and in our view, is a significant opportunity to facilitate the social licence for greater action on renewables and climate change.

**QU19: To what extent is increased uptake of medium-scale solar a regionalised opportunity?**

In order to maximise generation output and therefore financial viability, medium scale projects will naturally be attracted to the northern (particularly north western) part of the state.

Given ATA's view on the policy basis for development in the medium scale space, one of the key objectives in this context is to achieve as broadest geographic reach of projects as possible, in order to engage with the largest number of Victorians.

In order to facilitate this, this policy may need to break up the state into regions with targets (e.g. either number of projects or potentially installed capacity) reserved for each region (as an example, a south, east, west and northern region may be implemented).

**Recommendation 8:**

*In the development of a medium scale policy, ensure that the greatest geographic spread of projects is achievable across Victoria, in order to maximise individual and community engagement to the broadest number of people.*

### **Further Contact**

Thank you again for the opportunity to submit to this review and feel free to contact us should you have any questions regarding the content of this submission.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'D. Moyse', with a large, stylized flourish at the end.

**Damien Moyse**  
Energy Projects and Policy Manager